temperature of the clouds is not greater than that of the surface; and when the temperature of the cloud-screen is lower than that of the surface, the temperature of the latter will fall. It is scarcely necessary to remark that in discussing the influence of cloud on the diurnal periodicity of the wind's velocity, only such means are of real value as are calculated from a very large number of observations.

During the night, when terrestrial radiation is proceeding, the temperature of the surface falls greatly, and instead of an ascensional movement in the lowermost stratum of the air, there is, on the contrary, a tendency towards, and, if the wind be light, an actual descensional movement down the slopes of the land. The effects of friction being thus intensified, the velocity of the wind falls to the daily minimum during these hours.

ALEXANDER BUCHAN

EPHEMERIS OF THE GREAT COMET, b 1882

(*Communicated by Vice-Admiral Rowan, Superintendent U.S. Naval Observatory*)[1]

GREENWICH MEAN NOON

1883.	R.A. h.	m	s.	Decl. °	′	″	Log. *r*.	Log. Δ.
Feb. 10·0,	6	0	37·8	−19	41	17	0·48137	0·38891
14·0,	5	57	40·4	18	40	13	0·48909	0·40520
18·0,	5	55	19·7	17	41	17	0·49669	0·42132
22·0,	5	53	32·7	16	44	35	0·50413	0·43723
26·0,	5	52	14·7	15	50	14	0·51133	0·45282
March 2·0,	5	51	24·4	14	58	16	0·51841	0·46817
6·0,	5	50	58·7	14	8	43	0·52532	0·48322
10·0,	5	50	54·8	13	21	37	0·53200	0·49790
14·0,	5	51	12·3	12	37	0	0·53861	0·51231
18·0,	5	51	47·9	11	54	52	0·54508	0·52635
22·0,	5	52	39·5	11	15	10	0·55135	0·53995
26·0,	5	53	46·1	10	37	56	0·55751	0·55316
30·0,	5	55	6·1	10	3	6	0·56354	0·56594
April 3·0,	5	56	38·1	9	30	34	0·56944	0·57828
7·0,	5	58	20·9	9	0	19	0·57520	0·59015
11·0,	6	0	13·9	−8	32	21	0·58090	0·60158

Note.—In the published elements ϕ should be 89° 13′ 42″·70 instead of 89° 7′ 42″·70.

Washington, February 10

E. FRISBY,
Prof. Math., U.S.N.

ILLUSTRATIONS OF NEW OR RARE ANIMALS IN THE ZOOLOGICAL SOCIETY'S LIVING COLLECTION[2]

XI.

29. THE CAPE SEA-LION (*Otaria pusilla*).—It is a singular and as yet unexplained fact in geographical distribution, that while the Sea-lions amongst Mammals and the Albatrosses amongst Birds are confined to the South Atlantic Ocean, both these groups reach up to high northern latitudes in the Pacific. In the Atlantic, no Albatross is seen "north of the line," whereas these birds are familiar objects on the coasts of both California and Japan. No Sea-lion is met with in the Atlantic until we get to the Cape on one side and the La Plata on the other, but these animals are well-known objects at San Francisco, and the great supply of their much-valued furs comes from the far northern territory of Alaska.

The Sea-lion first became an inhabitant of our Zoological Gardens, and thus known to Europe in a living state, in 1866, when a French seaman, François Lecomte, brought to this country an example of the Patagonian species (*Otaria jubata*), and exhibited it to the public. The remarkable form of this animal, its extreme docility, and its agile movements attracted great attention, and led to its acquisition by the Zoological Society, in whose Gardens it quickly became an established favourite. Upon the death of this individual in the autumn of the same year, the Council of the Society determined to send out Lecomte, who had entered their service in charge of it, to the Falkland Islands, in order to obtain other specimens. Lecomte returned to this country in August, 1867, but owing to various unforeseen circumstances only succeeded in landing alive one of the four Sea-lions with which he had started from Port Stanley. This animal, young and small on its arrival, throve well under Lecomte's careful management, and soon supplied the void occasioned by the death of the original specimen. Like its predecessor, it exhibits extraordinary agility in the water, and catches the fishes thrown to it for food both above and below the surface with unerring aim.

Four years subsequently, in 1871, the Society received from Sir Henry Barkly, then Governor of the Cape Colony, a present of a young specimen of the Cape Sea-lion, of which we now give an illustration (Fig. 29). Like its Patagonian relative, the Cape Sea-lion is a female, and although quite adult, does not attain the dimensions of the male sex of these animals In general appearance, shape, and form, the two species are very similar, and present little obvious differences to the casual observer, except that the ear-lobe is longer in the Cape animal. To the two females has recently been added a young male of the Patagonian form, and the three individuals now live together in the narrow limits of their basin in the greatest harmony, forming one of the most attractive groups in the Regent's Park Gardens. Little has been recorded of the mode of life of the Sea-lion in a state of nature, but Mr. E. L. Layard in his "Catalogue of the South African Museum," tells us that it "is abundant along the whole of the coasts of the colony, and has given its name to numerous bays, islands, and capes, of which 'Robben' Islands near Cape Town is perhaps the best known.

"It resorts to these places in great numbers for breeding purposes, and is sought for and slain for the sake of its fur and oil. The male is said to be maned, and to much exceed the female in size, but though double the market value of the skin has been offered by the Museum for a skin of the male of this common animal, as it is not *the custom* of the sealers to take the skin off, leaving in the head and feet, we have been unable to procure one."

As regards the habits of some of the other members of this genus, which are of the most extraordinary character, we have now ample details concerning the North Pacific species in a very interesting and well illustrated work prepared by Mr. Henry W. Elliott on the Seal Islands of Alaska and their productions.[1]

Soon after the Sea-lions were established in the Zoological Gardens in this country, specimens of these animals were obtained by the principal Gardens on the Continent, and basins built for the exhibition of their aquatic evolutions. But the examples on the Continent, as well as those in the Aquarium at Brighton, all belong to one of the North Pacific species of Sea-lion (*Otaria californiana*), which is found in enormous multitudes upon the Pacific coast. Of the South African species now figured, the example in our Zoological Society's Gardens is the only one yet brought alive to Europe.

30. BLANFORD'S SHEEP (*Ovis blanfordi*).—Every high mountain-tract in Northern and Central Asia appears to be occupied by a distinct form of Wild Sheep (*Ovis*), while single outliers of the same genus are found far to the west in Sardinia and to the east in North America. Some of these animals, such as the celebrated "Ammon," of Ladakh (*Ovis hodgsoni*) and the Snow-sheep of Kamschatka (*O. nivicola*), attain a magnificent size and

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[1] Computed from elements (NATURE, vol. xxvii. p. 225) and reduced to the mean equinox 1883·0.

[2] Continued from p. 154.

[1] A Monograph of the Seal Islands of Alaska. By Henry W. Elliot Reprinted, with additions, from the Report of the Fishery Industries of th Tenth Census. 4to. Washington, 1882.

development, whilst others, like the Sardinian species (*Ovis musimon*), are more nearly of the dimensions of the ordinary domestic animal.

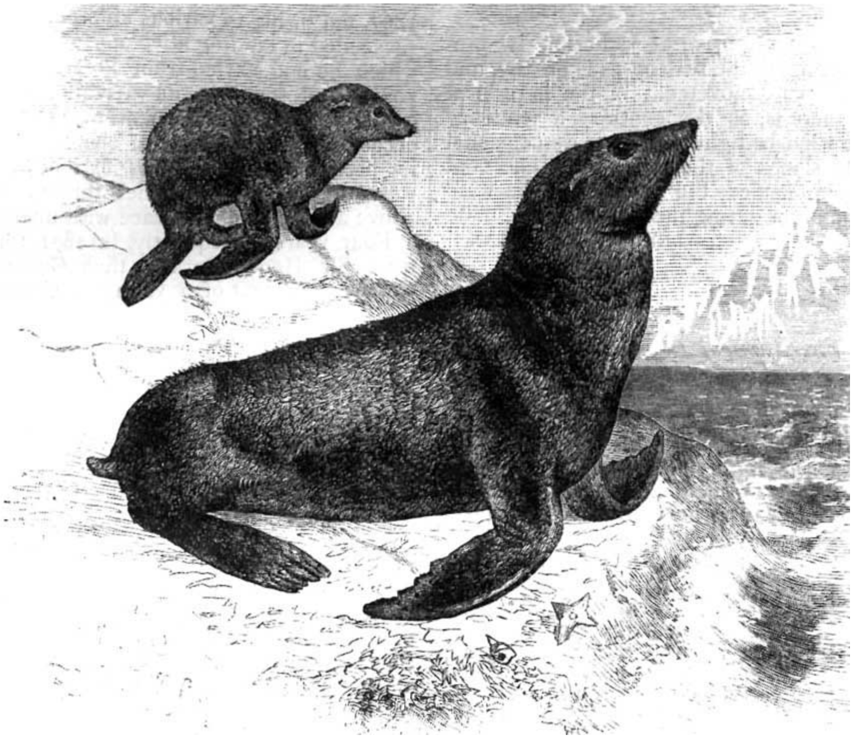

Fig. 29.—The Cape Sea-lion

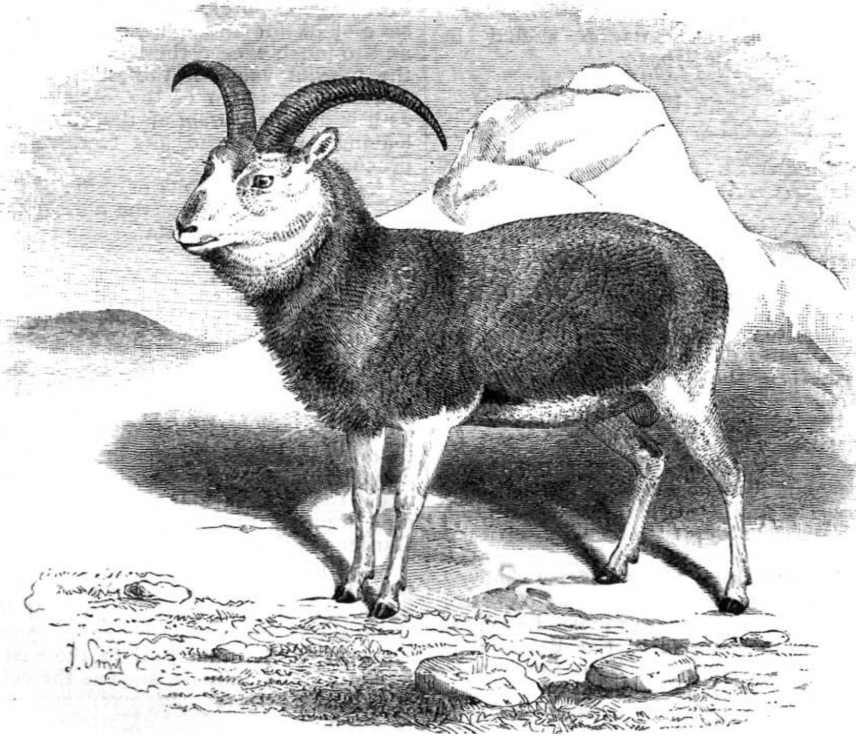

Fig. 30.—Blanford's Sheep.

The Wild Sheep best known to the sportsmen of British India is the "Koch" or "Gudd" of the Punjaub, also called the "Oorial." The Oorial frequents the rocky and stony hills of the Punjaub, as also the Sulimani range on the other side of the Indus and the hills of Hazara and Peshawur. In these districts, Dr. Jerdon tells us, it occurs at very low elevations—from 800 to

2000 feet above the sea-level—and is capable of enduring great heat.

The Punjaub Sheep was introduced into the Zoological Society's series nearly thirty years ago, and has frequently bred in their menagerie. The adults of both sexes and the lambs, of which two are generally produced at a birth, are correctly figured in Wolf and Sclater's "Zoological Sketches" from specimens living in the Society's Gardens.

The recent extension of British influence into Khelat and Afghanistan has led to our acquaintance with the Wild Sheep of the higher ranges of these territories, which, although closely allied to that of the Punjaub, is perhaps distinct and entitled to specific separation. Such at least is the opinion of the Indian naturalist, Mr. A. O. Hume, who in 1877 described and figured the horns of this form, from a specimen received from Major Sandiman, under the name *Ovis blanfordi*, in honour of Mr. W. T. Blanford, a well-known Indian zoologist and geologist. Mr. Hume's example of Blanford's Sheep was obtained in the hills above the Bolan Pass. The specimen from which our drawing has been prepared (Fig. 30) was captured in Afghanistan during the recent campaign in that country, and presented to the Zoological Society by Capt. W. Cotton in February, 1881. It is a young male animal with the horns not yet fully developed, and has been placed in company with a female of the better-known Sheep of the Punjaub hills, with which, there is no doubt, it will readily cross.

31. The Uvæan Parrakeet (*Nymphicus uvæensis*).—In the second volume of Capt. Cook's "Voyage towards the South Pole and round the World" will be found (at p. 110) a large, double, copper-plate engraving entitled a "View in the Island of New Caledonia," taken from a sketch prepared by Hodges, the artist of the expedition. The left-hand corner of this engraving contains a rude figure of a parrot with two feathers projecting from the summit of its head. This is doubtless the first representation ever given of the celebrated "Horned Parrot" of New Caledonia, of which a single specimen was obtained by the great circumnavigator when the island itself was first discovered (in September, 1774), and brought home for the collection of Sir Joseph Banks.[1]

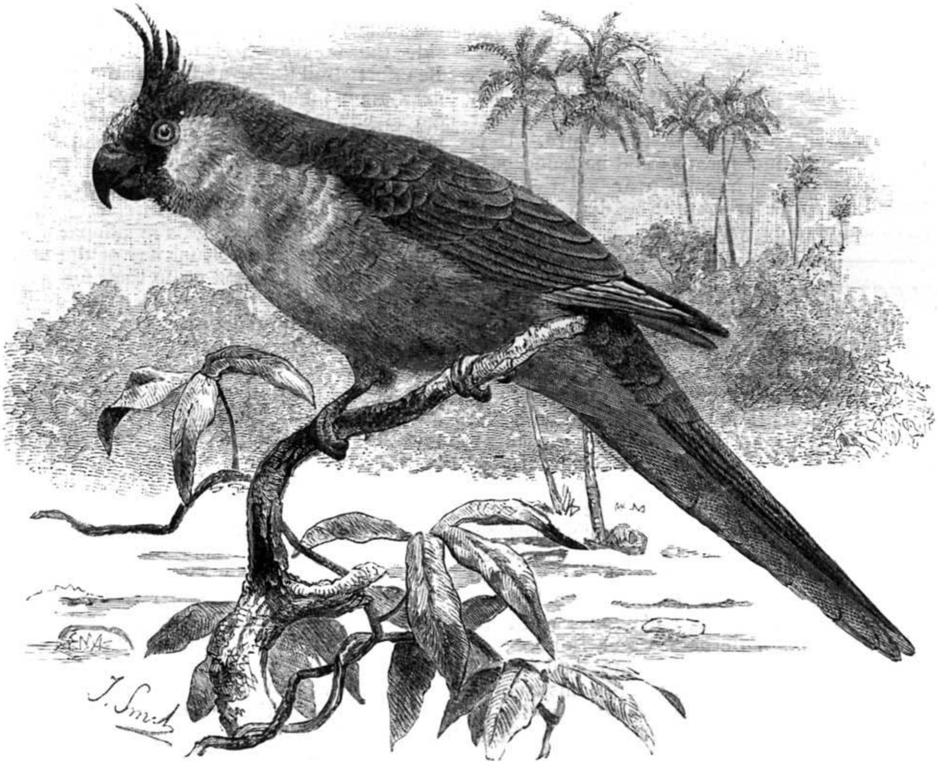

Fig. 31.—The Uvæan Parrakeet.

Since the time of Cook until recent days little more has been known of this singular parrot. In the posthumous works of Forster, who accompanied Cook as naturalist, it was described as "*Psittacus bisetis*," and Wagler, in 1832, made it the type of a new genus "*Nymphicus*." But specimens remained very scarce, and Dr. Finsch in his excellent history of the Parrot-tribe, published in 1868, tells us that it was then still one of the rarest of the whole family in the museums of Europe.

In 1879 however two living examples of this parrot were brought to London in a vessel coming from Sydney, and secured by the Zoological Society for its parrot-house. There was thus for the first time for those who do not wish to make a voyage to New Caledonia, an opportunity of seeing this lovely species in its full beauty. What, however, followed was still more singular. In April, last year, while the two Horned Parrots were still alive, there arrived in the London market a second pair of birds of the same peculiar structure, but presenting ample distinctions for their recognition by naturalists as a distinct species. These birds, it need hardly be said, were quickly secured for the Zoological Society's Aviary, so that the two forms might be exhibited side by side. At the same time was received a communication from Mr. E. L. Layard, H.B.M. Consul at Nouméa, in New Caledonia, a Fellow of the Zoological Society, and a well-known naturalist, describing the new species under the name *Nymphicus uvæensis* (see *P. Z. S.*, 1882, p. 408, Pl. XXVI.).

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[1] See Latham's "Synopsis of Birds," vol. i. p. 248.

It would appear that the Uvæan Parrakeet, of which we now give an illustration (Fig. 31), taken from one of the Zoological Society's living specimens, is a kind of satellite of the New Caledonian Parrakeet, as is the small island of Uvéa, in which it is found, of the larger island of New Caledonia. Mr. Layard had a living pair of the Uvean bird for some time in his possession before he noticed their difference from the New Caledonian bird, of which he had regarded them as the immature form. But in the first place the crest of the two birds is totally different. In *Nymphicus cornutus* the crest is composed of two elongated feathers, which are black, faintly tinged with green, and broadly tipped with red. In *N. uvæensis*, as will be seen in our figure, the crest consists of a bunch of about six short, upturned, entirely green feathers, springing from the end of a small spot of red which occupies the centre of the forehead. In *N. cornutus* the two long crest-feathers rise from the centre of the broad red cap which covers the whole top of the head. Besides this difference the former bird does not present the broad orange nuchal collar which ornaments *N. cornutus*, and exhibits only the faintest trace of orange on the rump.

The small island of Uvéa, one of the Loyalty group, to which the new species is confined, consists, as Mr. Layard tells us, of a series of small islets joined together by a connecting reef with a lagoon in the centre. It is very singular that this distinct form should be found only in so restricted a locality, while its near relative, the "Horned Parrot" of Cook, appears to be distributed all over the large island of New Caledonia.

THE ELECTRIC LIGHT AT THE SAVOY THEATRE[1]

MR. D'OYLY CARTE, having determined to light the Savoy Theatre by the Swan incandescence electric light, intrusted the work of installation to Messrs. Siemens Brothers and Co. The theatre is lighted by no less than 1194 Swan lights of the improved form introduced by Mr. C. H. Gimingham, of the Swan United Electric Light Company. Of these 1194 electric lights, the auditorium is lighted by 150 lamps attached in groups of three, supported on threefold brackets projecting from the different tiers and balconies, each lamp being inclosed within a ground, or opaloid, shade, by which arrangement a soft and pleasant light is produced. These bracket lamp-holders have been designed and constructed by Messrs. Faraday and Son, of Berners Street, London.

Two hundred and twenty lamps are employed for the illumination of the numerous dressing-rooms, corridors, and passages belonging to the theatre, while no less than 824 Swan lamps are employed for the lighting of the stage.

The stage lights are distributed as follows:—

6	rows of	100	lamps each above the stage ...	600
1	,,	60	,, ,, ,, ...	60
4	,,	14	,, fixed upright	56
2	,,	18	,, ,, ...	36
5	,,	10	,, ground lights ...	50
2	,,	11	,, ,, ...	22
				824

In addition to the above-mentioned lights within the theatre, there are eight pilot lights in the engine-room, which, being in the same circuit with some of the lights in the theatre, serve the purpose not only of illuminating the machinery, but also of indicating to the engineer in charge of the machines, by the changing of their illuminating power, when the lights in the building are turned up or down.

The lamps are at present worked in parallel circuit in six groups, five of which comprise 200 lamps each, and the sixth 202 lamps. The current of each group is produced by one of Messrs. Siemens Brothers and Co.'s W_1 alternate current machines, the field magnets of which are excited by a separate dynamo electric machine of the Siemens type, known as D_7. The machines and engines are fixed in a shed erected on a piece of waste land adjacent to the Victoria Embankment, the current being conveyed to the theatre by means of insulated cables laid underground.

The six alternate or W_1 machines are driven at a speed of 700 revolutions per minute, and the six exciting or D_7 machines at 1150 revolutions, by three steam-engines, that is to say, a portable 20-horse engine by Garrett, a 12-horse power portable by Marshall, and a 20-horse semi-portable engine by Robey, but the power actually utilised, as measured by a "von Hefner Alteneck" dynanometer, is between 120 and 130 horse-power. We must not, however, omit to state that, in addition to the six pairs of machines for working the 1202 incandescent lamps, there is also a D_2 Siemens dynamo machine for producing the powerful arc electric light suspended outside the theatre, and over the principal entrance in Beaufort Buildings, and that the power to drive this machine is included in the above-mentioned horse-power employed, as well as that necessary for driving the shunt machine used to charge the secondary batteries for the fairy lamps.

The most interesting feature, however, from a scientific point of view, of this most interesting installation, is the method by which the lights in all parts of the establishment are under control, for any of the series of lights can in an instant be turned up to their full power or gradually lowered to a dull red heat as easily as if they were gas lamps, by the simple turning of a small handle. There are six of these regulating handles, corresponding to the number of the machines and circuits—arranged side by side against the wall of a small room on the left of the stage, and each handle being a six-way switch, can, by throwing into its corresponding magnet-circuit greater or less resistance (according to its six stages), lessen or increase the strength of the current passing through the lamps by as many grades. The special interest of this part of the installation, however, is the fact that the turning down of the lights is accompanied by a corresponding saving of motive power in the engine, for the variable resistance which is controlled by the regulators is not thrown into the external or lamp circuit of the alternate current machines, but into the circuit by which their field magnets are excited.

The fittings of the lamps in the passages, staircases, &c., have, up to the present, been of a temporary nature, but, as the electric lighting has worked to the entire satisfaction of all concerned, these temporary fittings will now be replaced by permanent brackets, quite independent of the gas brackets.

All risk of fire is avoided by the leading wires being thoroughly insulated, and small pieces of lead wire being inserted into the circuit wherever a branch wire leaves the mains. These "safety-pieces" of lead are chosen of such size that they will melt before the conductors themselves become sufficiently heated to cause any danger, and by their melting the current is at once interrupted.

The small lamps worn by the fairies, and which have been specially made by the Swan United Electric Light Company, are rendered incandescent by the current produced from a small "secondary" battery, which is carried on the back like a small knapsack. These secondary batteries have been made by Messrs. Siemens Brothers and Co. on a new plan, and are charged by a shunt-wound Siemens' dynamo in the engine-shed. Each battery is provided with a switch, by means of which the light can be turned on or off by the wearer at pleasure.

The system of electric lighting has now been working

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[1] Communicated.